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Dong-ki Hong

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EXAMINER

CHU, KIM KWOK

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/642,674	<b>Applicant(s)</b> HONG ET AL.	
	<b>Examiner</b> KIM CHU	<b>Art Unit</b> 2627	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on April 7, 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Remarks***

1. Applicant's Remarks filed on April 7, 2008 have been fully considered.

With respect to the independent Claims 1, 3-7 and 16, Applicant's amended feature overcome the teaching of the prior art of Son et al. ((U.S. Patent 6,282,161). With respect to the amended claims, a newly found reference of Shimada (U.S. Patent 5,898,654) is cited as a prior art to reject the amended Claims 1, 3-7 and 16.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 7 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) in Claim 1, last two lines 17 and 18, the amended phrase "wherein the memory stores the tilt angle for recording or reproducing sectors which require tilt correction." is not clear because it is unclear whether the claimed limitation "tilt

Art Unit: 2627

angle" is the "calculated tilt angle" as defined in line 9, or other tilt angle which does not need to be calculated.

Furthermore, if the tilt angle is a calculated tilt angle, then amended lines 17 and 18 are claiming a feature which is already expressed in line 9. On the other hand, if the stored tilt angle is not a calculated angle, Applicant should clarify what is the difference between this stored tilt angle with respect to the stored calculated tilt angle as they are both written to the same memory;

(b) in addition, in Claim 1, last two lines 17 and 18, the amended phrase "wherein the memory stores the tilt angle for recording or reproducing sectors which require tilt correction." is contradicting to the claim limitation "if the tilt angle is not found in the memory, the tilt of the disc corrected using the calculated tilt angle" as in lines 12 and 13. Accordingly, Applicant's claimed memory stores all the tilt angles for recording or reproducing sectors which require tilt correction as claimed in lines 17 and 18, however, Applicant also claims that a tilt angle is calculated when it is not found in the memory as stated in line 12 and 13. In other words, Applicant should clarify whether or not the tilt angles or calculated tilt angles stored in the memory require a constant updating (calculating) process; and

Art Unit: 2627

(c) in Claims 7 and 16, last two lines, the amended phrase "wherein the memory stores the tilt angle for recording or reproducing sectors which require tilt correction." is indefinite as explained above in Claim 1.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (U.S. Patent 5,898,654) in view of Erbert (U.S. Patent 4,727,533).

6. With respect to Claim 1, Shimada teaches a method of correcting a tilt in a disk drive very similar to that of the present invention. For example, Shimada teaches the following:

(a) detecting a tilt of a disc 1 loaded in the disc drive (Figs. 4, 7 and 10; tilt evaluator 50 detects jitter amount at the current tilting angle; column 10; lines 36-46); searching a memory 55 (Fig. 4; column 10, lines 47-51) in the disc drive for a tilt angle for a recording or reproducing sector of the disc

Art Unit: 2627

in which the tilt is detected; calculating a tilt angle for the recording or reproducing sector based on the detected tilt of the disc if no tilt angle is found in the memory 55 (renewed tilt data is calculated from jitter stored in memories 51 and 52; column 10, 36-46); correcting the tilt of the disc (Figs. 4, 7 and 10); storing the calculated tilt angle in the memory 55 so that the calculated tilt angle is used for the recording or reproducing sector (Fig. 28; recording or reproducing sector is a data region along a track); wherein if a tilt angle is found in the memory 55, the tilt of the disc is corrected using the found tilt angle, and if the tilt angle is not found in the memory 55, the tilt of the disc is corrected using the calculated (renewed) tilt angle (Figs. 4, 7 and 10, column 10, lines 40-51), the recording or reproducing sector of the disc 1 is based on information on the position of a pickup for driving a motor for controlling movement (Figs. 4, 7 and 10; control movement is radial position, tracking etc.) of the pickup in the disc drive, and wherein the memory 55 stores the tilt angle  $S\theta_a$  (column 1-, line 47-51) for recording or reproducing sectors which require tilt correction (Figs. 4, 7 and 10).

However, Shimada does not teach that the position of a pickup is based on the number of pulses for driving a motor.

Art Unit: 2627

Erbert teaches that the position (tracking/focusing) of a pickup 10 is based on the number of pulses (digital commands) for driving a motor 44 (Fig. 6; column 10, lines 45-50, lines 63-67; column 11, lines 4-6).

Although Shimada does not specify his pickup is driven by digital pulses apply to a stepping motor, for the advantage of precision tracking servo control in a radial direction, it would have been obvious to one of ordinary skill in the art to use a stepping motor such as Erbert's for a radial direction movement such as Shimada's, because the stepping motor can be driven under command pulses to position Shimada's pickup between tracks with high precision.

7. Apparatus claims 3-6 are drawn to the apparatus corresponding to the method of using same as claimed in claim 1. Therefore apparatus claims 3-6 correspond to method claim 1, and are rejected for the same reason of obviousness as used above.

8. Claim 16 has limitations similar to those treated in the above rejection, and is met by the reference as discussed above.

Art Unit: 2627

9. Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over by Shimada et al. (U.S. Patent 5,898,654) in view of Erbert (U.S. Patent 4,727,533) and further in view of Nishiwaki (U.S. Patent 6,704,254).

Shimada in view of Erbert teaches a tilt correcting apparatus very similar to that of the present invention as recited in claim 7. However, both Shimada and Erbert do not teach the following:

(a) with respect to Claim 7, tilt correcting method is implemented by a computer readable encoded with processing instructions (program).

Nishiwaki teaches an optical disk control method where its tilt adjustment is controlled by a program stored in a recording medium (column 17, claim 14).

In order to access compensated values in a tilt correcting operation, a software servo program is more flexible than a hardware device such as a digital signal processing unit. Therefore, when there is a disc servo control where variables such as tilt correcting values needed to be stored, it would have been obvious to one of ordinary skill in the art to implement the tilt servo method such as Shimada in view of Erbert's in form of Nisiwaki's software executable instructions and stored it in Nishiwaki's computer readable recording medium



Art Unit: 2627

instead of electronic circuits, because the software design cost less and its instructions/steps can be updated or modified.

10. *Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).*

*A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.*

Art Unit: 2627

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/

Examiner AU2627  
July 11, 2008

(571) 272-7585

/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627